



axicon
THE BARCODE EXPERTS

Axicon 15000 series 2D & linear barcode verifier user guide



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This user guide was made using:
4.0 version of the Axicon Camera Verifier Software for Windows.



Contents

Introduction	4
How the verifier works	6
Calibration	7
Getting started	8
Operating the verifier	11
Cropping	13
Saving and using scan files	15
Saving and printing reports	16
Settings	17
Annual service	30
Warranty	31
Disclaimer	31
Contact	32



Introduction

The Axicon 15000 series verifiers are designed to work with any PC running a currently supported version of Windows (Windows 10 & 11 - both 32 bit and 64 bit versions).

Specification and application

The 15200's field of view is 60mm x 45mm, and is designed to verify linear and 2D barcodes, including those used on retail point of sale and healthcare items. These are typically EAN/UPC or GS1 DataMatrix symbols.

The 15500's field of view is 95mm x 70mm, and may be used to scan a larger range of barcodes at different sizes. These include all GS1 symbols, and Code 93, Code 128, ITF, MSI Plessey - if they are no wider than 95mm.

The software is able to decode the following symbols:

Linear barcodes: EAN-8, EAN-13, UPC-A, UPC-E, Code 39, Code 93, Code 128, GS1-128, Codabar, ITF, MSI Plessey, GS1 DataBar, Laetus Pharmacode.

2D barcodes: Data Matrix, GS1 DataMatrix, QR Code, GS1 QR Code, GS1 Composite Code and PDF-417.

Application standards: Data content checking can be carried out on all the symbols that have been verified. This includes check digits, and combinations of GS1 application identifiers and their element strings especially for various healthcare applications.

Multiple barcodes within the field of view will be found and can be verified to the appropriate standards.



What is in the case.

- Axicon 15000 Series verifier
- Software CD
- Wallet containing this user guide, calibration card and certificate of conformance to ISO/IEC 15426-1, 15426-2
- Cleaning cloth

System requirements

- Currently supported Windows Operating System (either 32 or 64 bit)
- 100 MB disc space
- 512 MB RAM minimum
- USB 2.0 port or higher

Software installation

Insert the CD into an appropriate drive and the Install program should start automatically. If it does not, run **autorun.exe**. When the software has been successfully installed, leave the CD in the drive, so that the USB driver will be installed when the verifier is connected to the computer. The software is called Axicon Camera Verifier, and the latest version can always be downloaded from the Axicon website, www.axicon.com. The software will check automatically if a later version is available. It can be used on any PC or laptop to view the verification scan files that have been saved even when the verifier is not connected.

Hardware installation

Connect the USB lead from the verifier to a USB2 or USB3 port on the computer. Please install the software before connecting the 15000 series verifier.



How the verifier works

The verifier must be connected to a PC or laptop that is running a currently supported version of Windows using the USB connection, and used with the Axicon Camera Verifier program.

The verifier has two buttons, which both do the same thing, and either one is pressed to turn the verifier on. The image capture process will start and you can see what the verifier sees on the main software window. When the barcodes you want to verify are in the right place, press one of the buttons again to begin the decoding and verification of the barcodes.

Ideally each barcode should be verified when it appears on the final filled item, in its final configuration. If the packaging by itself is verified, and is completely covered by the verifier, the verification process will be good.

If the verifier is placed on its side, or upside down, take care to minimise the effect of ambient light. Ensure that any semi-translucent substrates are backed by a uniform black surface to minimise the effect of light being transmitted through the substrate.

There are two buttons so that you can easily use the one that is most convenient if you have the verifier on its side or upside down. The keyboard shortcut Ctrl + G is the equivalent to pressing the button.

The image that has been captured and decoded can be saved as a scan file (.png), and this can be re-verified at any later time. The software allows the creation of verification reports for each barcode that appears in the image, and the user simply clicks on the relevant barcode for which a report is required.

More details about this process, saving scan files, and saving verification reports are explained later on in this user guide.



Calibration

When you use the verifier for the first time, it will tell you that it must be calibrated. This will ensure that its reflectance measurements are correct.

Take the calibration card from the plastic wallet, and place on a flat surface. Place the verifier over the EAN-13 barcode or the Data Matrix code so that it appears in the verifier window.

Then choose calibrate from the reader menu. The verifier will ask you to confirm positioning and that the Rmax and Rmin figures shown on the window match those printed on the card. If they are different, alter the numbers via the calibration tab in the settings menu and restart the calibration process. You will then need to press start.

The verifier software will then check the image, calibrate, and recheck the image. When this has been done a message 'Calibration Successful' will be shown. After this message, another scan will be made so that you can check that the verification results are correct. The Rmin and Rmax figures need to agree with those on the calibration card.

The calibration card supplied with the verifier provides barcodes with known maximum and minimum reflectance values. The calibration card is certified for a minimum of one year (unless it has been physically damaged).

When it is not being used please keep the card flat in its plastic envelope, and away from direct sunlight. If the card shows any sign of damage - for example, scratches or any change in colour - please obtain a new card from us.



Getting started

After calibration, the home window for the software will look this:

The window main areas are explained below.

The screenshot displays the Axicon Camera Verifier software interface. The main window shows a calibration card with the Axicon logo and the text "Calibration Card" and "EAN-13". A barcode is visible on the card, and a green box highlights it. The software interface includes a menu bar (File, Reader, Help) and a toolbar with icons for Quit, Load scan..., Save scan..., Print Report, Start Scanning, Decode, Settings..., Calibrate..., and User Data. A "Check for updates..." button is located in the top right corner. The right side of the interface shows the "Application Validation: Pass" results for scan 5012345678900. The results are as follows:

4.0/06/660 (A)	
Application Validation: Pass	
General Reader Scan	
5012345678900	
EAN-13	
Pass grade	1.5
X Dimension	322.3 µm, 101% (80%, 200%)
Print Gain	25 µm, 7.4% (±30.5%)
Check Character	06 >
Left Quiet Zone	10 Items: 10 Pass
Right Quiet Zone	10 Items: 10 Pass
Height	22.9 mm
Width	37.7 mm
Aperture	150 µm
ISO Details	
Overall	4.0 (A)
Minimum Reflectance	24.0% (3.7%)
Maximum Reflectance	89.7%
Threshold	46.4%
Reflectance Margin	24.7%
Symbol Contrast	3.0 (A): 86.6%
Minimum Edge Contrast	4.0 (A): 62.2%
Modulation	4.0 (A): 71.9%
Defects	4.0 (A): 3.2%
Decodability	3.0 (A): 81.6%
Decode	4.0 (A)

At the bottom of the interface, there is a table with the following data:

Status	Element	Value	Description	Notes	Errors	Warnings
Pass	Grade	4.0 (A)	Grade must be at least 1.5 (C)			
Pass	Aperture	150 µm (06)	Required aperture: 150 µm (06)			
Pass	X dimension	322 µm	Allowed X dimension range: 249 µm to 660 µm			
N/A	Bar Height	22.9 mm	Height of bars should be at least 23.0 mm			

Found codes: 1

The top section includes the file menu and the toolbar with its command icons.

The File menu includes options for saving and loading scans, creating and printing reports. The View menu gives access to Settings (F5) and User data.

The Reader menu provides options for choosing which verifier is operational, reader information, scanning, decoding, and calibrating the reader (the verifier).

The Help menu provides access to the Axicon website, a check for software updates, and information about the software.



The Command icons on the tool bar are as follows:



Quit the application, or use Ctrl + Q



Load a saved barcode image, or use Ctrl + O



Save the current image and verification report, or use Ctrl + S



Print, or use Ctrl + P



Start collecting barcode images in the field of view, or press one of the two buttons on the verifier, or use Ctrl + G. This will be orange when the verifier is connected and grey when it is not. It will change into a pause icon when scanning.



Stop collecting images from the current reader.



Decode barcodes in the current image. This will change into a stop icon when the barcodes are being decoded.



Stop searching for barcodes.



Edit the settings for the application, or use F5



Used to calibrate the hardware, or use F2.



Display and edit user-defined data for this scan.

If you move the cursor over the encoded data in the general tab and right click this will bring up the option to copy the data to clipboard. If there is a web address here you can also click to open it in your default web browser.

4.0/20/660 (A)

Application Validation: N/A

General Reader Scan

<http://www.axicon.com>

QR Code - 2005

Copy to clipboard
Open URL: <http://www.axicon.com>

Pass grade	1.5
Minimum Reflectance	7%
Maximum Reflectance	100%
X Dimension	857 µm
Y Dimension	853 µm
X Print Gain	79 µm, 9%
Y Print Gain	78 µm, 9%
QR Version	3
Mask Reference	2
Error Correction Level	Q
Aperture	500 µm



Getting started

The top right section provides the overall results for the verification. It will provide the grade in the format n.n/aa/www (X), where n.n is the ISO/IEC grade, aa is the aperture reference number, www the wavelength of the light being used for the verification in nanometres and X is the ANSI equivalent.

This panel also has three tabs, where the first set of information about the barcode is shown.

The General tab will show you the decoded data from the symbol, its x and y dimensions, the print gain, and the aperture size.

The Reader tab simply gives you detailed information about the verifier such as its serial number and build version, and when it was last calibrated.

The Scan tab provides details of when the image to be verified was scanned by the verifier.

The bottom right section includes two tabs; ISO and Details.

The ISO tab will include details of all the parameters defined by ISO/IEC for the particular barcode being verified.

The Details tab provides a breakdown of the results by individual scan line and by parameter for the barcode highlighted.

The bottom left panel will include details that relate to the analysis of a symbol by one or more of the optional plugins. Plugins are chosen by the user and they will be used to check if the symbol meets the requirements of one or more applications. More information about this is provided later on in this user guide.

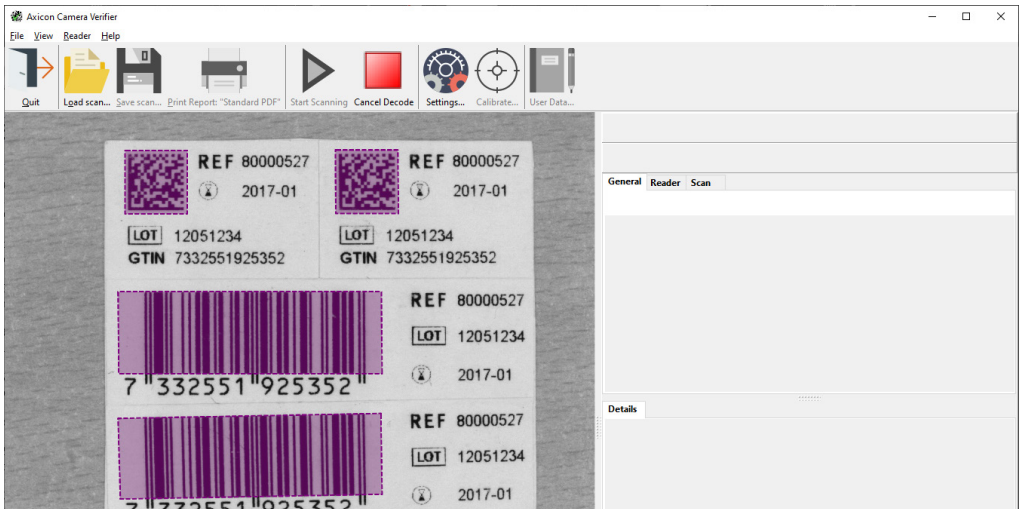
The status bar is at the very bottom of the window, and provides details of what the verifier is doing. If a verifier is not connected, the message 'Found Readers 0' will appear in the status bar. When a verifier is connected, the message will be 'Selected reader: xxxxx', where 'xxxxx' is the serial number of the verifier.



Operating the verifier

Make sure the Axiicon Camera Verifier program is open, the verifier is connected, and press one of the buttons on the verifier or press the orange ‘Start scanning’ arrow on the toolbar. Then place the verifier over the barcode(s).

The message ‘Scanning’ will appear in the status bar at the bottom of the window. With the verifier held still, press one of the verifier buttons again to begin the decode process. You can also press the ‘decode’ icon in the tool bar. Do not move the verifier until ‘Cancel decode’ appears or all codes have been found.



The verifier will draw a purple box around each of the barcodes it has found. You must click on one of these to select it, and then the results will be displayed. Click on any other barcode to see its results. Clicking on the selected code will zoom in.

When only one symbol is present the code will be selected automatically. To verify the next barcode, simply press one of the verifier buttons or the orange arrow to begin the scanning again. This action will clear all the details of the previous verification.

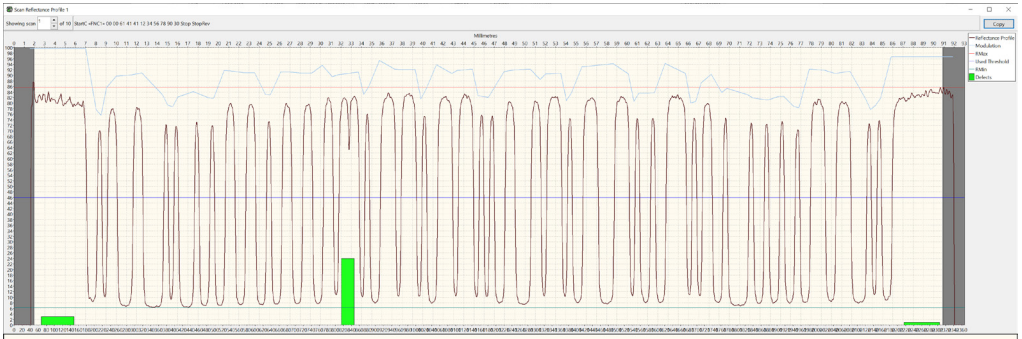
Any linear barcode will be verified using ten different scan lines, as specified by ISO/IEC 15416, and the verification grade will be based on the average of these ten readings.



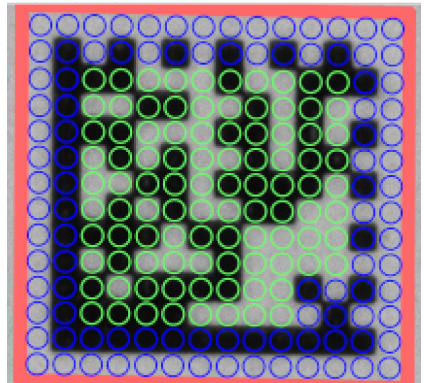
Operating the verifier

The bottom right hand section of the window, with the ISO and Details tabs, will provide you with more information, especially about linear symbols.

If the ISO tab is selected, and you click on the names for each parameter in turn, you will see the scan lines across the barcode shown in the verifier window. These will change colour according to whether that parameter has a pass (in green) or a fail (in red) for that particular scan line. To get a scan reflectance profile of your linear barcode you can press F9, select from the 'view' menu or click on the Details tab and select individual scans, and then a particular scan info (1 to 10). The scan reflectance profile (SRP) will now show at the bottom of the scan info results. Click



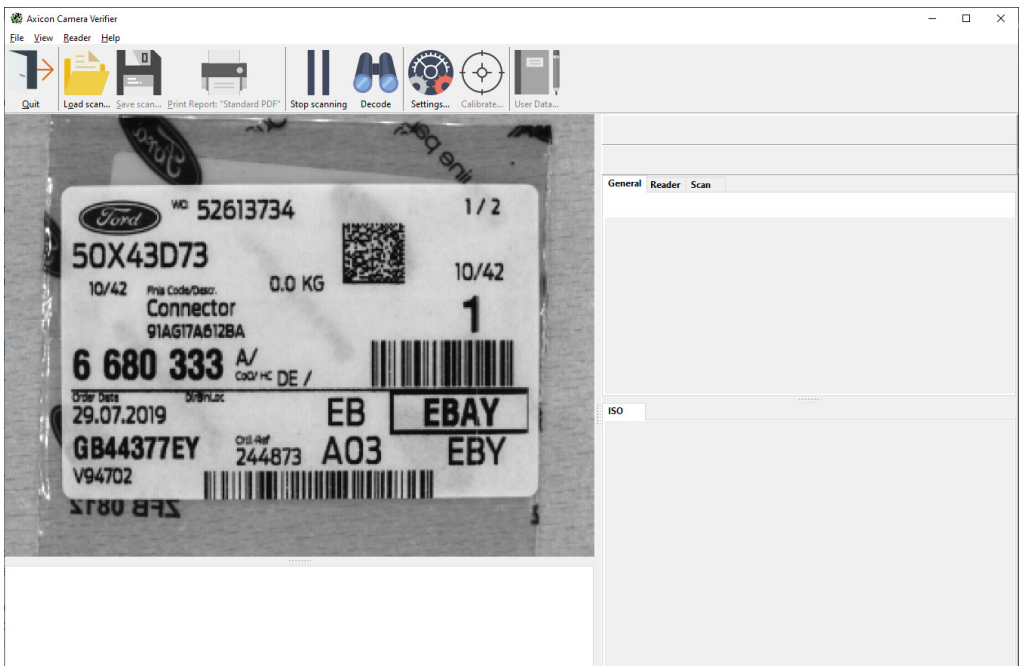
on the reflectance profile to enlarge it. If you select an area of the SRP using your mouse it will be enlarged. Click away from the enlargement to return to the complete SRP. When there are several symbols, click on each in turn to see its results. The now solid border will change to different status colours to indicate whether the symbol has passed or failed. Now click on the selected symbol to enlarge it. To see how each module has been assessed, click on the name of one of the parameters. The size of the circle shows the aperture size, and a change in colour will highlight any relevant modules for that particular parameter. Blue is the neutral colour for all these displays.





Cropping

If the verifier has to look at a complicated image, with a number of barcodes, and other images with rectangular edges, the software will take some time to make sure that any rectangular edges are not plausible 2D barcode images before decoding all the barcodes correctly. Cropping the image so that it only contains the barcode you are interested in will speed up this process. This cropping will also reduce the size of the scan file.



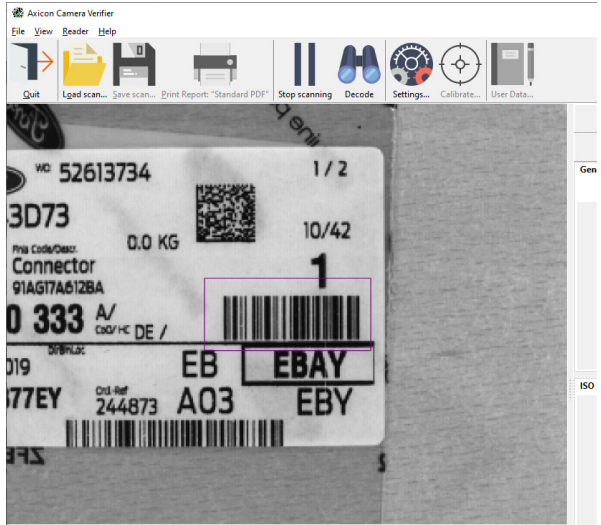
Reposition the verifier during the scanning process so that the barcode is approximately in the centre of the field of view. Then left click outside and above the barcode, and a rectangular crop box will be drawn in the centre. You may need to click again to make sure the box is large enough, and you may need to re-centre the barcode. Now click on the 'Search for barcodes' icon or press one of the verifier buttons. The crop box will become the whole image, the image in the box will be decoded, and the verification results will appear on the right. The rest of the field of view will have been ignored.



Cropping

Click on the selected image to enlarge it, and click again to take it back to its original size.

Clicking on the orange arrow icon to restart the scanning process (for another barcode) will reveal that the cropping box is still present inside the original field of view. Right clicking within the image panel will remove the box, and left clicking will create a new crop box.



0.0/05/660 (F)

Application Validation: N/A

General	Reader	Scan
6680333		
Code 128		
Pass grade		1.5
X Dimension		252.2 µm
Print Gain		228 µm, 1% (+33.0%)
Check Character		OK: 101
Height		7.3 mm
Width		27.9 mm
Aperture		125 µm
Left Quiet Zone		10 items: 10 Pass
Right Quiet Zone		10 items: 10 Fail

ISO	Details	Value
Overall		0.0 (F) *
Minimum Reflectance		4.0 (A), 0.0% *
Maximum Reflectance		88.9% *
Threshold		44.5% *
Reflectance Margin		7.0% *
Symbol Contrast		42.9 (B), 88.9% *
Minimum Edge Contrast		4.0 (A), 44.4% *
Modulation		32.0 (C), 50.0% *
Defects		0.2 (F), 41.2% *
Decodability		32.6 (B), 43.0% *
Decode		0.0 (F) *



Saving and using scan files

The image, and verification and plugin results of any codes that have been verified can be saved in a scan file. This is done by choosing ‘Save scan...’ from the File menu.

The scan file is the basis for the verification reports that are created from it. For example, one scan file may include four barcodes if each one has been decoded and each barcode will have its own verification results.

To open a saved scan, select Load Scan from the File menu.

When a saved scan file is opened by the application, the original data is available and displayed. In addition, the original image can also be re-verified using the ‘search for barcodes and decode them’ icon - this will then automatically use any plugins that are activated regardless of whether the plugins were used at the time of original verification. The plugin details will be included in each verification report.

The full verification results are then shown and reports can be viewed (and printed) as required.



Saving and printing reports

The screenshot shows the Axicon Camera Verifier software interface. The 'File' menu is open, highlighting the 'Save Report' option. A sub-menu is visible, listing various report formats: Data Matrix CSV, Detailed plugins HTML, GSI format HTML, Linear CSV, QR Code CSV, Standard CSV, Standard HTML, Standard PDF, Standard plain text, and Template: available-tags.txt. The 'Append Report' option is also visible. The main window displays a verification report for a GSI Data Matrix. The report includes a QR code, a barcode, and the following data: REF 80000527, LOT 12051234, and GTIN 7332551925352. The report also shows a table of ISO details and a table of errors.

Status	Element	Value	Description	Notes	Errors	Warnings
Pass	(01)	07332551925352	Global Trade Item Number (GTIN) [n2+n14]			
Fail	(17)	31/01/2017	Expiry Date (YYMMDD) [n2+n6]		*	1
Pass	(10)	12051234	Batch or Lot Number [n2+n.20]		*	

ISO	Details	Value
Overall		4.0%
Decode		4.0%
Symbol Contrast		4.0% 87%
Axial Non-Uniformity		3.0% 1%
Grid Non-Uniformity		4.0% 7%
Modulation		4.0%
Reflectance Margin		4.0%
Unusual Error Correction		3.0% 100%
Contrast Uniformity		43%
Fixed Pattern Damage		4.0%

A verification report may be saved in .csv, .pdf, .html or .txt formats. Additionally reports can be manually saved for subsequent printing or printed without saving.

Select 'Save Report' from the File menu and select the required format from the list. This selection will be remembered and can be repeated with the shortcut Ctrl + R.

If you want the report to be automatically opened on creation (for example, if there is a need to print the report) then tick the 'Open Report' box.

You can append verification reports if you are using a CSV format, and you have ticked the 'Append Report' box. If this box is left unticked and the file name is not changed, the data will be overwritten.



Settings

The verifier has a range of configuration settings. These can be set by clicking on **View** and then selecting **Settings**.

Appearance: The Appearance tab allows you to set the appropriate colours for “Fail”, “Warning” and “Pass”, choose the language, set the units of measurement to metric or imperial units and set the pass grade. Plugins (chosen on the next tab) will often have pass grades, but if you want to set a higher value for the pass grade, make the change here. Hover text will appear to help you understand these settings. The appearance tab also offers the option to resize the appearance of the toolbar and to show text.

Plugins:

Settings

Appearance | **Plugins** | Reports | Saving | Lookup | User Data | Calibration | Advanced

Available Plugins:

80% Aperture	Default (Off)
Brazil Healthcare	Default (Off)
CIP	Default (Off)
Code 39 Check Character	Default (On)
DAVA Healthcare	Default (Off)
GS1 Data Content	Default (Off)
GS1 Distribution	Default (On)
GS1 Documents, Assets & Locations	Default (On)
GS1 Global Service Relation Numbers	Default (On)
GS1 Healthcare (bedside)	Default (Off)
GS1 Healthcare Retail	Default (On)
GS1 Pharmacy & Distribution	Default (On)
GS1 Retail (point-of-sale)	Default (On)
GS1 Retail (point-of-sale) & Distribution	Default (Off)
GS1 UPC Human Readable	Default (On)
HIBC	Default (On)

Disable all | Default all

'Ask User' plugins

- Allow multiple 'Ask User' plugins for each scan
- Allow to not apply any 'Ask User' plugin

Plugin Description:

This plugin will recommend that an aperture of 80% of the module size of a two dimensional code should be used for verification.

Default aperture (2D)

- ISO/IEC 15415
- Percentage of module size: %
- Fixed value: μm

When no plugins recommend an aperture (2D)

- Warn and use default
- Use default silently
- Show prompt

OK | Cancel



Settings

Plugins: The Plugins tab is used to select how the symbols will be checked for their data content, their dimensions, and any other aspects defined by a particular application. These include GS1 Data Content, which will check for correct combinations of application identifiers, GS1 Retail (point-of-sale) which will check the type and size of the barcode, and many more. By default, many plugins are switched off. To change this, select the plugin you require, and choose from the drop-down list: **On** will check relevant codes, **Always Show** will check every code, **Off** will deactivate the plugin, and **Ask User** will ask for confirmation everytime.

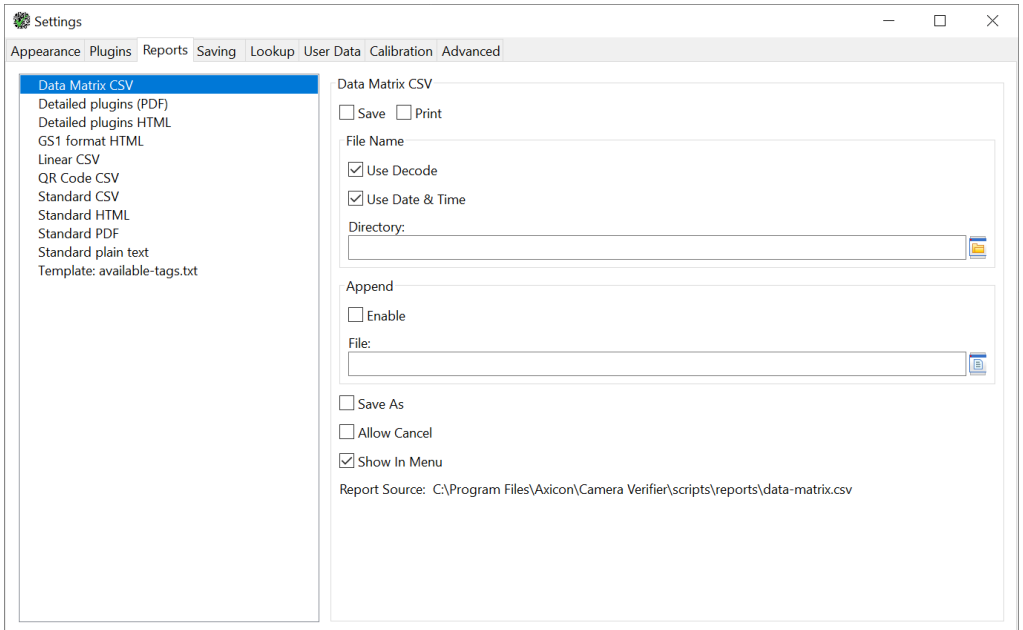
- **Off:** Never show results from this plugin.
- **Default:** Use the plugin's own choice of whether to display results.
- **“(Off)”** means this plugin has requested to be disabled unless explicitly set to “On”.
- **“(On)”** means this plugin has requested to show results for all applicable codes.
- **On:** Show results from this plugin for all applicable codes.
- **Always Show:** If this plugin can display results, show them for all codes, whether applicable to the plugin or not.
- **Ask User:** Display this plugin in a list from which the user can choose, whenever a code is scanned.

There is also an option at the bottom of the list to disable all or to revert to the default settings.

The plugins tab also offers the choice to change the default aperture for 2D barcodes and to prompt when no plugins recommend an aperture.



Reports



In this window you can enable automatic saving and/or printing of reports. Select the type of report file and choose an output file where the data will be kept. There is an option to add the records to an existing file rather than replacing the file, which is of benefit with text files, including CSV files. Choose Append and then where you want these reports kept.

If Use Decode box is ticked, the report name will automatically be created using the first digits of the decoded number.

If Use Date and Time box is ticked, the report name will automatically be created using the date followed by the time as a file name.

If Use Decode and Use Date and Time boxes are both ticked, the file name will automatically be created using the decoded number followed by the date and time.

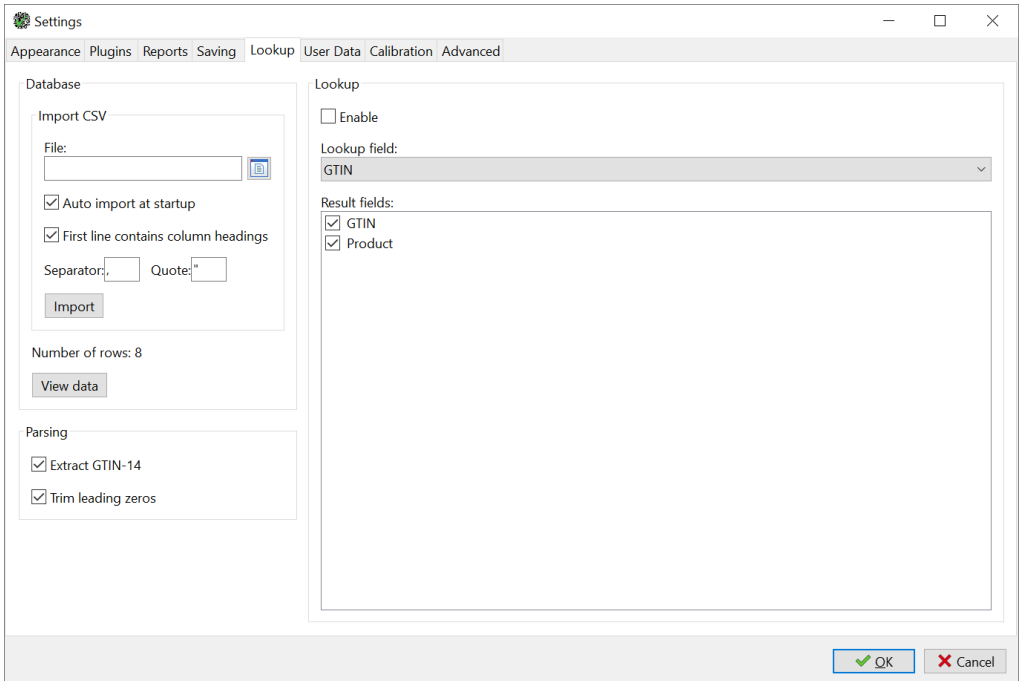


Settings

Saving: The Saving tab can be used to enable automatic saving of all of the scan files for audit purposes. The enable box must be ticked for the software to save the scan files. Browse to your chosen location in the directory.

If Use Decode or Use Date & Time (or both) are ticked, then the dialogue box will appear with the pre-selected data and allow the operator to override this if required.

Lookup



This window enables users to check the GTIN or other data in the barcode being verified against a database of records. For example, you can check that the GTIN has been assigned to a current product, and have its description displayed. The database will need to be exported and saved in a .csv format.



First of all click on the Import button (which is on the left hand side of the window) and then select the .csv file that you have established as the database. You can check if this is the correct one by clicking on the View data button towards the bottom left of the window.

Then choose the Lookup field from the dropdown menu on the right hand side of the window to select the heading for the column of the table that records all the GTINs.

Then go to the Results field box below to select which data you want to be shown on the report. Ticking both the heading for the column that records all the GTINs, as well as the appropriate product description will mean that both entries are displayed together.

Now go to the top right of the window and tick the Enable box.

The parsing box on the bottom left of the window provides different options for dealing with GTINs. Tick the Extract GTIN-14 option to keep the GTIN in a 14-digit format, and tick the Trim leading zeros option to ignore any unnecessary leading zeros.

The result of the lookup will be included in the barcode verification report.

The screenshot displays the Axicon software interface. On the left, a barcode is shown with the label 'EAN-13' above it and the number '5 012345 678900' below it. Below the barcode, there is a search bar with 'GSI Retail' selected and 'Lookup' as the action. The search results show 'Found: 5012345678900' and 'Product: Hand Sanitiser'. On the right, there is a 'Details' section with a table of ISO parameters. The table has two columns: 'ISO' and 'Details'. The 'ISO' column lists various parameters, and the 'Details' column shows their values. The values are highlighted in green.

ISO	Details
* Overall	10.0 (A)
* Minimum Reflectance	18.0 (A) 2.9%
* Maximum Reflectance	12.1%
* Threshold	43.0%
* Reflectance Margin	25.8%
* Symbol Contrast	14.0 (A) 80.2%
* Minimum Edge Contrast	14.0 (A) 58.0%
* Modulation	14.0 (A) 73.1%
* Defects	14.0 (A) 5.9%
* Decodability	14.0 (A) 99.0%
* Decode	14.0 (A)



Settings

User Data: User Data allows you to program the Axicon 15000 series software to ask questions when a verification is being made, to collect the answers and to store these with the verification report. This supplementary user data will then always be displayed with the verification report.

Such data may typically be a job reference number or batch number, but equally it could be information about the barcode such as the substrate or print process or details about the operator, the department or the site. Multiple questions can be entered if desired.

To set up the User Data:

From the View menu select Settings. Click on the User Data tab of the Settings window. To add a User Data item press the + symbol at the bottom left of the window. The Create User Datum window will be shown. This can now be completed as required.

An example of a Job Reference entry is shown here. The title is entered and the Allow Blank is un-ticked to force you to enter data into this field.

Create User Datum

Item Title:

Allow Blank Content

Allow Edit

Default:

Reset to default value each scan

Pass Value:

Check value

Preset Values:

OK Cancel

Create User Datum

Item Title:

Test

Allow Blank Content

Allow Edit

Default:

Finished products

Reset to default value each scan

Pass Value:

Check value

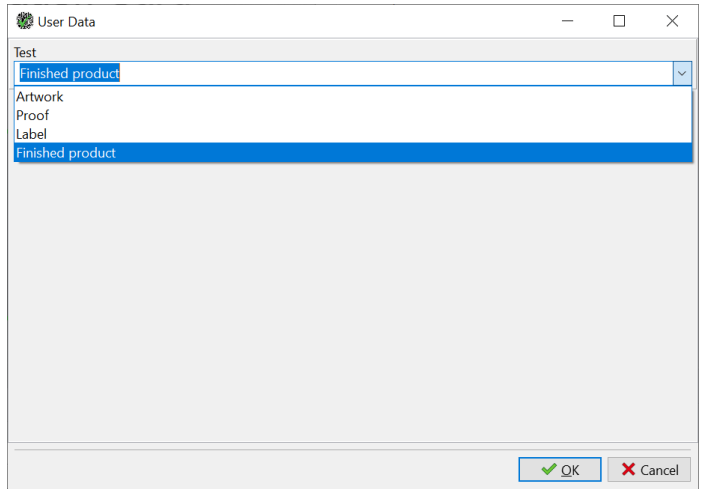
Preset Values:

Artwork
Proof
Label
Finished product

OK Cancel



This sample shows how you can be offered a pull-down menu of options but with a default option given. The default can be left blank. When the list of selected questions has been completed press the OK button.



Now when you verify a barcode and select 'save' scan the User Data dialogue window will appear and allow you to enter the required information. If you now save the scan file the User Data information is automatically saved with it.

When loading a pre-saved scan file for which User Data has been attached you simply need to load the scan file, and re-verify the code using the Search for all barcodes icon and then select View/User- Data from the pull-down menu.

The Axicon software also includes a facility for transferring the User data settings from an existing scan file (whether made from this computer or not). Simply load an existing scan file, go to the View/settings/User Data screen and then press the 'Add the user data fields' icon.

There are also facilities to edit an existing User Data entry (ideal for adding items to a pull-down menu). You can also clear any existing User Data requirements and prompt the user data to always show.



Settings

Calibration

Settings

Appearance Plugins Reports Saving Lookup User Data Calibration Advanced

Calibration card reflectance

RMin: 3 RMax: 88

Expiry

Days until calibration reminder: 28

Allow scanning when calibration expired

OK Cancel

This window allows users to enter the minimum (RMin) and maximum (RMax) reflectance values for calibration (see page 7).

This windows also allows the option to change days until calibration reminder and to allow or not to allow scanning when calibration has expired.



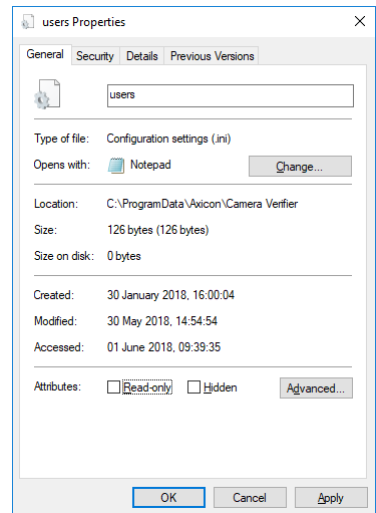
Advanced: This window allows you to lock all the settings for the verifier so that other users cannot change them, and to require individual users to login before using the software. A supervisor, who will take control of making any configuration changes for all of the users, needs to follow the instructions below to ensure that users have the same settings and are not able to make changes to those settings.

By default the settings for the Axicon Camera Verifier software are independently configurable by each user of the software. This means that if several people use the same PC and verifier, and login in with their own user names and passwords, they can each change the settings to suit their use of the verifier.

The process of calibrating the verifier results in the storage of data that is used by all users, so that a change of user will not require the verifier to be re-calibrated. By default all users are allowed to calibrate the verifier.

To use this window you will need to change the read-only attribute for the ‘users.ini’ file, which is in the common configuration directory. This file normally has a read-only attribute which disables the common configuration and user login settings. This is done to prevent changing the settings by accident because it will affect all users on the computer.

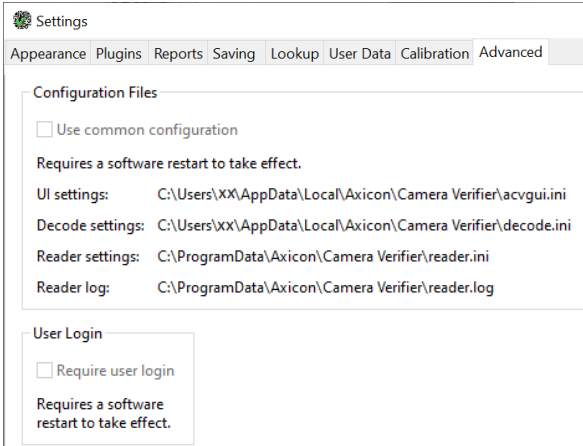
Go to the hidden folder “C:\ProgramData\Axicon\Camera Verifier”, right-click on ‘users.ini’, select ‘Properties’ and untick the ‘Read-only’ tick box and click on ‘OK’.



Restart the camera verifier software and the common configuration and user login options will now be enabled in the Advanced window of the Settings dialog.

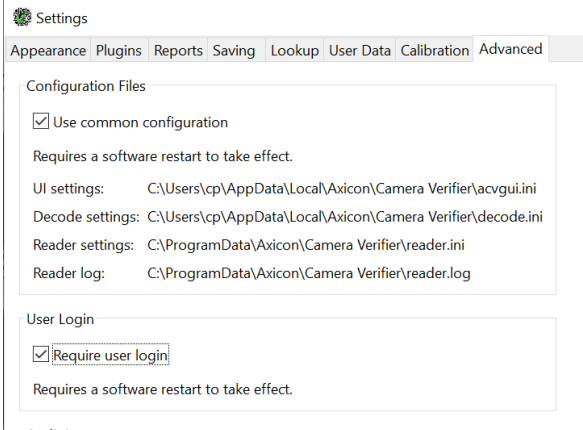


Settings



When a supervisor ticks the ‘Use common configuration’ box, all the settings that the supervisor has made will be applied to everyone that uses the computer. The settings are now locked by the supervisor that enabled the option and only this user can disable it.

Optionally the ‘Require user login’ box can be ticked, then every time a person opens the software, the computer’s Windows operating system login screen will appear.



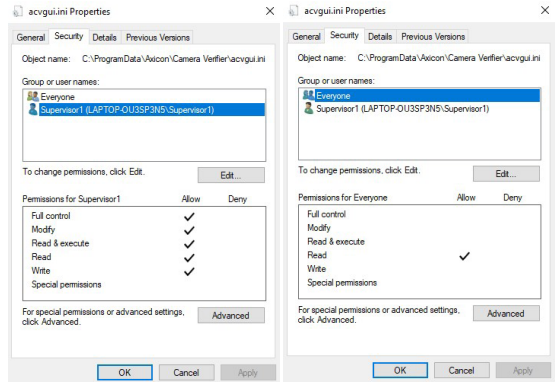
You must restart the software now so that these changes take effect. If you return to this window, you will see that it now looks like the image on the left.

After restarting the software, the Advanced tab of the configuration window shows the location of the configuration files for the software which apply to all users. Decode settings will normally be blank and are mainly for testing

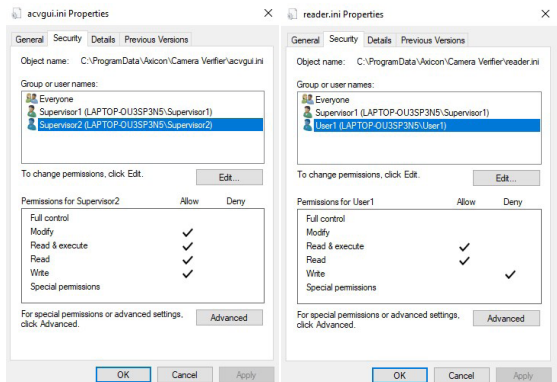
purposes. User Interface (UI) settings (the ‘acvgui.ini’ file) are for the configuration options that are available through the settings dialogue and after enabling the ‘use common configuration’ option these settings will be assigned read-only permission for all users except for the supervisor who will have full control.



If an organisation wants to grant permission for an additional supervisor to be able to modify the software configuration settings, then the Windows security settings for that additional supervisor need to be set to allow write and modify permissions for the acvgui.ini file on the Security tab of the properties dialogue which is accessed through Windows File Explorer.



Reader settings (the 'reader.ini' file) stores the calibration data for each verifier that has been connected to the computer and calibrated. By default, all users will be able to calibrate the attached verifier as all users will have write permissions for this file. If an organisation wants to limit which users can perform calibration, then the permission to write to the reader.ini file should be denied for individual users or groups of users, as shown in this properties dialogue for 'User1'. Any users (or groups of users) that are not denied permission to write to this file will continue to be able to calibrate verifiers on the computer.



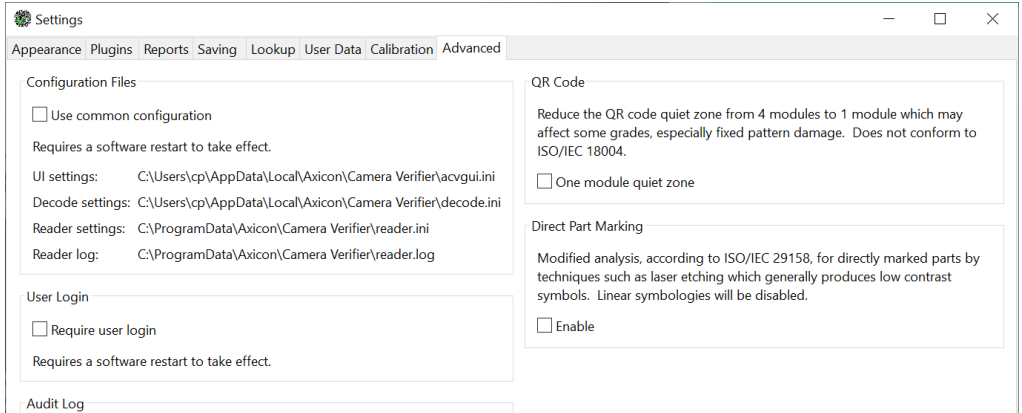
In the Advanced tab of the settings menu there is also an Audit Log option. This will create a log of all settings changes, saving, printing and calibration operations. It is recommended that either autosaving of scans or reports (or both) are enabled so that every verification scan is recorded in the audit log. All entries in the log will include the time and date as well as a record of the user that is running the software.

A copy of the audit log can be exported (as a .csv file) by clicking on the 'Export to CSV' button.



Settings

The Advanced tab also includes two options on its right hand side. These enable a change in the quiet zone required for QR Code, and for changing the verification process for direct part marked (DPM) symbols.



QR Code

The ISO/IEC standard for QR Code (ISO/IEC 18004:2015 QR Code barcode symbology specification) requires all QR Codes to have a quiet zone with a width of at least 4 modules on all sides of the symbol. If you choose to use this smaller quiet zone requirement, and not be compliant with ISO/IEC 18004 or the GS1 General Specifications, tick the option for 'One module quiet zone'. This will be reported in the results.

Direct Part Marking

If this option is enabled, the verifier will verify the 2D symbol following the requirements of ISO/IEC 29158 Direct Part Mark (DPM) Quality Guideline, and not ISO/IEC 15415. This option will also disable the verifier's ability to verify any linear barcodes.

Direct part marked symbols are not printed conventionally, but are created by modifying the surface of the item, using techniques such as laser marking, electro-chemical etching, dot peening, and engraving. These symbols may have a lower symbol contrast than other symbols, which could impact the scanning performance with a conventional reader. These DPM symbols may only be readable under specialised lighting conditions.”



When in DPM mode the reflectance levels of the captured image are optimised before decoding and verifying the symbol. Best results are obtained by cropping the image so that the image only contains the barcode that you want to verify. This is explained on page 13 and 14.

The verifier software allows you to see the difference that using the DPM approach makes to the barcode image. Go to 'View' in the main menu, and then click on 'Show DPM Image', or use the shortcut key F4 to toggle between the optimised and unmodified images.

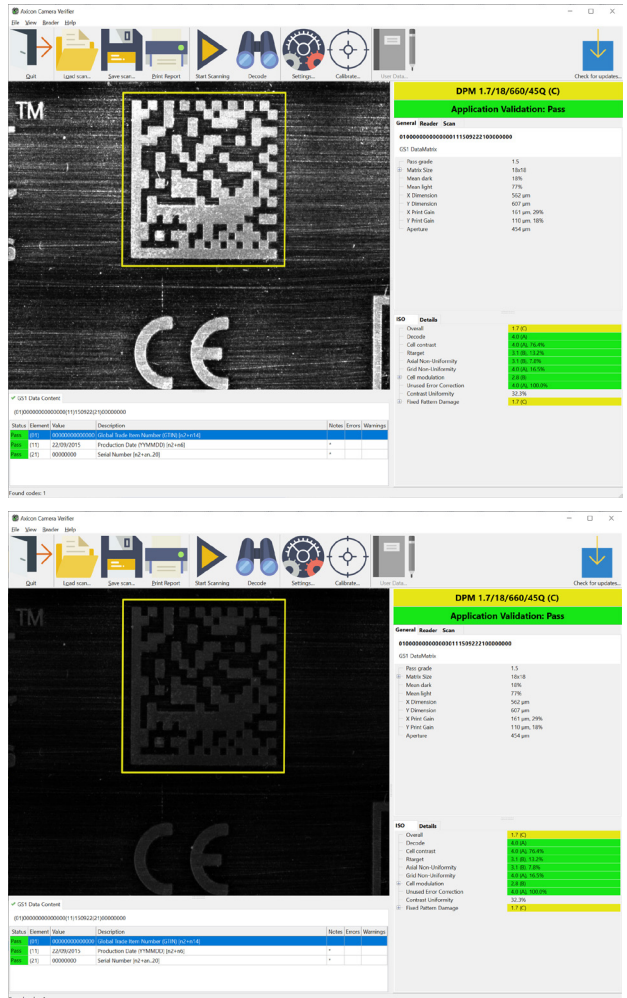
The result of the verification will be prefixed by the letters 'DPM', and the grade, aperture reference and wavelength of light will be followed by details of the angle of illumination and its direction. For example, a symbol's grade could be stated as follows:

DPM 2.0/10/660/45Q

45 means a lighting angle of 45°, and Q means it has been illuminated from all four sides.

The 15200 and 15500 models only use this lighting angle and direction of lighting.

This DPM option should only be enabled when it is appropriate to apply ISO/IEC 29158 and the symbols will be read using a specialised DPM scanner.





Annual service

All verifiers need servicing every year to ensure that they measure barcode quality in accordance with the relevant ISO/IEC standards. This verifier conformance and alignment service (VCAS) ensures that the verifier is internally dust-free, checks that it is focused correctly, and adjust the hardware to account for any change in the brightness of the LEDs used to illuminate the barcodes.

This annual service is not the same as user calibration, as it looks at the output of the LEDs and corrects for any variance in their evenness of illumination across the whole field of view. Over time the LEDs will fade but they will not fade uniformly. User calibration ensures that the verifier is measuring the darkest and brightest reflectance's correctly but it cannot correct for any variance in the illumination.

After your verifier has been serviced, we will return it you with the latest version of the software on CD together with a new calibration card, and a new user guide that will include the new certificate of ISO/IEC conformance. You will then need to calibrate the verifier before you use it again. The latest software can always be downloaded free of charge from our website, www.axicon.com.

e-Cert

Returning a verifier to us for this annual VCAS (verifier conformance and alignment service) is sometimes difficult, yet the verifier may still be operating within its expected tolerances, and could be re-certified as being conformant to the ISO/IEC standards for barcodes and barcode verifiers. Using eCert provides you with the reassurance that the barcode verifier is working correctly without having to return it to us.

We supply a set of specially produced barcode test cards, a new calibration card, and instructions about how to use them and upload the results to an Axicon web platform. Axicon's technical staff will assess the results, and if the verifier passes we will supply you with a new certificate of conformance that lasts for one year.





Warranty

The Axicon 15000 series verifier is sold with a two year parts and labour warranty against manufacturing defects. This is a return to bench warranty with shipping costs in one direction being borne by the customer/distributor.

Should you need to return the unit to Axicon the original case (plus appropriate packaging) must be used. If the equipment is returned without the original case, we will automatically charge an additional sum for its replacement.

Axicon's standard repair turnaround time is 7-10 working days. This standard warranty does not include the provision of a loan unit. Loan units can be supplied on request.

Axicon reserves the right to charge an inspection fee for any equipment returned under warranty for which no fault is found. Please contact us to obtain an RMA number before returning any equipment. This number must be quoted on all documentation. We cannot accept responsibility for equipment returned without an RMA number.

Disclaimer

In the following the expression **Verifier** means the verifier hardware and the associated software.

We have taken care to ensure that this Verifier is free from defects. However since we have no control over the circumstances in which you might use the Verifier, you must satisfy yourself that the performance of the Verifier is suitable for your needs. Neither Axicon Auto ID Limited nor the vendor of this Verifier can accept any liability for any loss or damage (consequential or otherwise) which may be caused by use of this Verifier.

If the Verifier or any part of it is defective in any way, or in some other way does not meet your expectations, the liability of Axicon Auto ID Limited is limited to the cost of the product. You should bear this limitation in mind if you use this Verifier in any situations where the acceptance or rejection of shipments of goods or your reputation may depend upon the quality of a barcode.



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